

WHAT IS CLAIMED IS:

1. A CDMA receiver for detecting paths of a direct incoming  
5 wave and a delayed incoming wave corresponding to a channel of  
a receiving signal and combining signals of a plurality of paths  
detected, comprising:

searcher unit operating in a first mode in a first search  
time range and in a second mode in a second search time range,  
10 which is narrower than said first search time range, and detecting  
paths of said direct incoming wave and the delayed incoming wave  
in said first mode or in said second mode, and

finger unit for inversely diffusing signals of the paths  
detected with said searcher unit, combining a plurality of signals  
15 inversely diffused and detecting whether synchronization of said  
combined signal is set up or not, whereby

said searcher unit operates in said first mode at a time of  
starting the reception of signal of said channel and then operates  
in said second mode after switching from said first mode when the  
20 synchronization of said combined signal is detected with said  
finger unit.

2. The CDMA receiver of claim 1, wherein when detection  
of synchronization with said finger unit is continued for a

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predetermined time period or longer or for a predetermined number of times or more, said searcher unit switches the operation mode to the second mode from the first mode.

5           3. The CDMA receiver of claim 1, further comprising:  
a correlation detector for inputting a receiving signal to  
a matched filter to detect a correlation value with the diffusion  
code corresponding to the channel in view of changing a number  
of input stages to be used in the matched filter in said first mode  
10 and said second mode.

          4. A CDMA receiver for detecting paths of a direct incoming  
wave and a delayed incoming wave corresponding to a channel of  
a receiving signal and combining signals of a plurality of paths  
15 detected corresponding to a plurality of channels, comprising:

a searcher unit to be used for time division corresponding  
to a plurality of channels operating in a first mode of a first  
search time range corresponding to respective channels and in a  
second mode of a second search time range, which is narrower than  
20 said first search time range, to detect paths of said direct  
incoming wave and delayed incoming wave in said first mode or said  
second mode corresponding to respective channels, and

a finger unit for receiving, through inverse diffusion, a  
signal of a path detected with said searcher unit corresponding

to respective channels, combining a plurality of inversely  
diffused signals and detecting whether synchronization of said  
combining signal is set up or not, whereby

5 said searcher unit operates in said first mode at a time of  
starting the reception of signals of respective channels and  
operates by switching the operation mode to said second mode from  
said first mode corresponding to the respective channels when the  
synchronization of said combining signal of the respective  
channels is detected in said finger unit.

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5. The CDMA receiver of claim 4, wherein each channel  
is monitored for whether detection of synchronization in the finger  
unit is continued for a predetermined time period or longer or  
for a predetermined number of times or more and the operation mode  
15 of said searcher is switched to the second mode from the first mode  
for a channel in which detection of synchronization is continued  
for the predetermined time period or longer or for the  
predetermined number of times or more.

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6. A CDMA receiver for detecting paths of a received signal  
corresponding to a channel and combining signals of a plurality  
of detected paths, comprising:

a searcher unit operating in a first mode in a first search  
time range and in a second mode in a second search time range, which

is narrower than said first search time range, and detecting paths of a direct incoming wave and a delayed incoming wave in at least one of said first mode and said second mode, and

5 a finger unit for inversely diffusing signals of the detected paths, combining a plurality of signals inversely diffused and detecting whether synchronization of said combined signal has occurred, wherein

10 said searcher unit operates in said first mode at a time of starting signal reception of said channel and switches to said second mode when synchronization of said combined signal is detected by said finger unit.

15 7. The CDMA receiver of claim 6, wherein said searcher unit switches to said second mode when detection of synchronization in said finger unit continues for a predetermined time period.

20 8. The CDMA receiver of claim 6, wherein said searcher unit switches to said second mode when detection of synchronization in said finger unit continues for a predetermined number of times.

9. The CDMA receiver of claim 6, further comprising:

a correlation detector for inputting the received signal to a matched filter to detect a correlation value with a diffusion code corresponding to the channel in view of changing a number of

input stages to be used in the matched filter in said first mode and said second mode.

10. The CDMA receiver of claim 6, wherein said searcher  
5 unit utilizing time division operates corresponding to a plurality of channels, operating in said first mode corresponding to respective channels and in said second mode corresponding to respective channels; and

said searcher unit operates by switching the operation mode  
10 to said second mode from said first mode corresponding to each respective channel when the synchronization of said combined signal of the respective channel is detected in said finger unit.

11. The CDMA receiver of claim 10, wherein each channel  
15 is monitored for whether detection of synchronization in the finger unit continues for at least one of a predetermined time period or longer and a predetermined number of times or more, and the operation mode of said searcher is switched to the second mode from the first mode for a channel in which detection of synchronization  
20 is continued for the at least one of predetermined time period or longer and the predetermined number of times or more.

12. A method of a path search function in a CDMA receiver having a plurality of finger units and a searcher unit, comprising

the steps of:

operating in at least one of a first mode in a first search time range and in a second mode in a second search time range, which is narrower than said first search time range;

5 detecting paths of a direct incoming wave and a delayed incoming wave in at least one of said first mode and said second mode;

inversely diffusing signals of the detected paths;

combining a plurality of signals inversely diffused;

10 detecting whether synchronization of said combined signal has occurred according to a predetermined threshold; and

switching the operating mode between said first mode and said second mode depending upon the detected synchronization of said combined signal.

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